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TI Silver catalyst for ethylene oxide production

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DT Patent

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AB A porous refractory support is impregnated with amine chelating agents, salts of Ag, Na, Cs, and Ba and metal halides (excluding iodides) and heated 1-30 min at 150-250.degree. to give catalysts for manuf. of ethylene oxide (I). Thus, heating 248 g AgNO₃ and 148 g K₂C₂O₄.H₂O in 2 L water at 60.degree., filtering the ppt., washing the ppt., mixing the ppt. with 0.2 L water contg. 79.1 g ethylenediamine and 21.7 mL 1,3-propanediamine, 40 mL water contg. 0.22 g Ba(NO₃)₂ and 0.234 g CsCl, and 1 kg Al₂O₃ (surface area 0.5 m²/g, pore vol. 0.4 mL/g, preimpregnated with 26.9 g Na₂CO₃), evapg. at 100 mmHg, heating at 200.degree. for 10 min in air flowing at 2 m/s, and crushing gave a catalyst (particle size 4-9 mesh) contg. 13.5% Ag, 0.4% Na, 100 ppm Ba, 158 ppm Cs, and 42 ppm Cl. A gas mixt. contg. 30 vol.% C₂H₄, 8 vol.% O₂, 2 ppm CH₂:CHCl, and the balance N was passed over 5 mL above-prepd. catalyst at 1.8 kg/cm² g, 215.degree., and space velocity 4000 h⁻¹ to give I at O conversion 40% and I selectivity 81.6% after 1 wk.

IT 74-85-1, reactions
(epoxidn. of, catalysts for)